



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

W

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,895	08/27/2002	David Wolff	DSC-02002	7973
31661	7590	10/19/2004		
EXAMINER				
NGUYEN, HOANG M				
ART UNIT		PAPER NUMBER		
3748				

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/064,895	WOLFF ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Hoang M Nguyen	3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 01 September 2004.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-38 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.  
\_\_\_\_\_

Applicant's amendment dated September 01, 2004, has been fully considered.

Applicant has amended the claims to include more limitations. A new ground of rejection has been made based on newly discovered references from further search and from the references of record after further consideration.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4253428 (Billings et al).

Billings et al is relied upon to disclose a pressure relief valve 62 being used with hydrogen tanks 74, 78, and hydrogen tank having liquid coming out to pump 134, and gas coming out through regulator valve 46, and intake through line 130. Please note the pump 134 can be considered as a pump system as claimed because said pump pumps liquid hydrogen from the top of the hydrogen tanks 66, 70. Regarding claims 33-35, the engine in Billings et al can be internal combustion engine or simply combustion engines.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 7-10, 11, 13, 25, are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 4386309 (Peschka) in view of U.S. 6365289 (Lee et al).

Peschka discloses a system comprising a tank contains liquid hydrogen (1), a hydrogen gas outlet for connecting with a fuel cell 14 which can be considered as another hydrogen container. Peschka does not disclose that the hydrogen gas from the container is used to drive an power conversion engine. Lee et al is relied upon to disclose a power system comprising a fuel cell 10, the output of said fuel cell is directed to a superheater 111 and then drive a gas expander 116 to produce energy, it's well known that the expander shaft is used to drive a generator/alternator for generating electricity. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the output hydrogen gas in Peschka to drive a gas expander as taught by Lee et al for the purpose of generating work output from said driven expander. Regarding claims 7-9 , Vanzo does not disclose the specific flow rate as claimed in claims 7-9. However, it would have been a matter of design choice for a person having ordinary skill in the art to provide different flow rate in the engine of Vanzo for the purpose of achieving appropriate work outputs depending on the flow rates.

Claims 36-38, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of Lee et al and U.S. 4253428 (Billings et al). Peschka as modified by

Lee et al discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose a pump is used to pump liquid hydrogen out of a tank and a relief valve. Billings et al is relied upon to disclose a pressure relief valve 62 being used with hydrogen tanks 74, 78, and hydrogen tank having liquid coming out to pump 134, and gas coming out through regulator valve 46, and intake through line 130. Please note the pump 134 can be considered as a pump system as claimed because said pump pumps liquid hydrogen from the top of the hydrogen tanks 66, 70, the engine in Billings et al can be internal combustion engine or simply combustion engines. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a pump and pressure release valve in the system of Peschka as taught by Billings et al for the purpose of controlling the hydrogen output.

Claims 2, 12, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of Lee et al and U.S. 5375580 (Stolz et al). Peschka as modified by Lee et al discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose an internal combustion engine, and the concept of using waste heat of the engine to drive alternator. STolz et al is relied upon to disclose an internal combustion engine can be used in a system. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use internal combustion engine in the system of Peschka as taught by STolz et al for the purpose of achieving appropriate power output.

Claims 3, 5-6, 14-15, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of Lee et al and U.S. 6543229 (Johansson). Peschka as modified by Lee et al discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose a Stirling engine, and the concept of using waste heat of the engine to drive alternator. Johansson is relied upon to disclose a STirling engine can be used in a system and the concept of using waste heat of the Stirling engine for driving an alternator. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Stirling engine in the system of Peschka, and to use the waste heat to drive an alternator as taught by Johansson for the purpose of obtaining more work from the waste heat and because using the Stirling engine is well known and is functionally equivalent with other gas turbine engine.

Claims 16-17, 22-27, 29, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of Lee et al, U.S. 4253428 (Billings et al) and US 4910963 (Vanzo). Peschka as modified by Lee et al and Billings et al discloses all the claimed subject matter as set forth above in the rejection of claim 36, but does not disclose another valve for controlling the liquid output. Vanzo is relied upon to disclose valve is used to control the output of a liquid hydrogen tank 24. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a liquid valve in the system of Peschka as taught by Vanzo for the purpose of controlling the liquid hydrogen output.

Claims 18-19, 30-31, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of U.S. 4910963 (Vanzo), Lee et al, U.S. 4253428 (Billings et al) and further in view of U.S. 5375580 (Stolz et al). Peschka as modified by discloses all the claimed subject matter as set forth above in the rejection of claim 16, but does not disclose an internal combustion engine, and the concept of using waste heat of the engine to drive alternator. STolz et al is relied upon to disclose an internal combustion engine can be used in a system. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use internal combustion engine in the system of Peschka as taught by STolz et al for the purpose of achieving appropriate power output.

Claims 20-21, 28, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Peschka in view of U.S. 4910963 (Vanzo), Lee et al, U.S. 4253428 (Billings et al) and further in view of U.S. 6543229 (Johansson). Peschka as modified discloses all the claimed subject matter as set forth above in the rejection of claim 16, but does not disclose a Stirling engine, and the concept of using waste heat of the engine to drive alternator. Johansson is relied upon to disclose a STirling engine can be used in a system and the concept of using waste heat of the Stirling engine for driving an alternator. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Stirling engine in the system of Peschka, and to use the waste heat to drive an alternator as taught by Johansson for the purpose of

Art Unit: 3748

obtaining more work from the waste heat and because using the Stirling engine is well known and is functionally equivalent with other gas turbine engine.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Nguyen whose telephone number is (703) 308-3477. The examiner can normally be reached on Monday--Thursday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion, can be reached on (703)-308-2623. The fax phone number for the Examiner is (703) 872-9302 for regular communication, and (703) 872-9303 for after final communication.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0861.

A handwritten signature in black ink, appearing to read "H. NGUYEN". To the right of the signature is a handwritten date "10/14/04".

HOANG NGUYEN  
PRIMARY EXAMINER  
ART UNIT 3748

Hoang Minh Nguyen  
10/14/04